

What is claimed is:

- 1 1. A communications system comprising:
2 an encoder to encode a digitized speech signal;
3 a communication link communicatively coupled to the encoder;
4 a decoder communicatively coupled to the encoder via the
5 communication link; and
6 a short term excitation enhancement circuit in communication with
7 the encoder and the decoder.
- 1 2. The system according to claim 1 where the decoder includes the short
2 term excitation enhancement circuit.
- 1 3. The system according to claim 1 where the short term excitation
2 enhancement circuit operates to improve the perceptual quality of speech data for
3 reproduction.
- 1 4. The system according to claim 1 where the system employs eXtended
2 code-excited linear prediction.
- 1 5. The system according to claim 1 where the system employs code-
2 excited linear prediction.
- 1 6. The system according to claim 1 where the short term excitation
2 enhancement circuit is distributed between the encoder and the decoder.
- 1 7. The system according to claim 1 where the short term excitation
2 enhancement circuit places at least one pulse, in addition to at least one current
3 excitation pulse, within a speech sub-frame.
- 1 8. The system according to claim 7 where the short term excitation
2 enhancement circuit uses a weighted excitation pulse to estimate a location of a
3 correlation peak within the speech sub-frame.

1 9. The system according to claim 8 where the short term excitation
2 enhancement circuit uses the estimated location of the correlation peak to place the at
3 least one pulse.

1 10. The system according to claim 1 where the short term excitation
2 enhancement circuit performs short term excitation within a pitch lag.

1 11. A communications system comprising:
2 a short term excitation enhancement circuit that improves the
3 perceptual quality of speech data for reproduction.

1 12. The system according to claim 11 where the short term excitation
2 enhancement circuit places at least one pulse, in addition to at least one current
3 excitation pulse, within a speech sub-frame.

1 13. The system according to claim 12 where the short term excitation
2 enhancement circuit uses a weighted excitation pulse to estimate a location of a
3 correlation peak within the speech sub-frame.

1 14. The system according to claim 13 where the short term excitation
2 enhancement circuit uses the estimated location of the correlation peak to place the at
3 least one pulse.

1 15. The system according to claim 11 where the short term excitation
2 enhancement circuit performs short term excitation within a pitch lag.

1 16 The system according to claim 11 where the system employs eXtended
2 code-excited linear prediction.

1 17. The system according to claim 11 where the system employs code-
2 excited linear prediction.

1 18. The system according to claim 11 where the short term excitation
2 enhancement circuit is included on a decoder of the communication system.

1 19. A method to perform excitation enhancement on speech data, the
2 method comprising:

3 analyzing a coded signal; and
4 performing short term excitation enhancement in accordance with the
5 analyzed coded signal.

1 20. The method according to claim 19 where the analyzed coded signal
2 includes a past weighted excitation signal.

1 21. The method according to claim 19 where analyzing the coded signal
2 further includes estimating a location of a correlation function within a current sub-
3 frame.

1 22. The method according to claim 21 where estimating the location of the
2 correlation function is based on a past weighted excitation signal.

1 23. The method according to claim 22 further comprising adding a pulse,
2 in addition to at least one current excitation pulse, to a current sub-frame to produced
3 an enhanced excitation signal.

1 24. The method according to claim 23 further comprising using the
2 enhanced excitation signal during the reconstruction of the original speech signal.

1 25. The method according to claim 22 further comprising transmitting
2 the weighted excitation signal from an encoder to a decoder via a communication
3 link.

1 26. The method according to claim 19 further comprising performing
2 code-excited linear prediction to generate the coded signal.

1 27. The method according to claim 19 further comprising performing
2 eXtended code-excited linear prediction to generate the coded signal.